SRM VALLIAMMAI ENGINEERING COLLEGE
(An Autonomous Institution)

SRM Nagar, Kattankulathur–603203

DEPARTMENT OF MEDICAL ELECTRONICS

QUESTION BANK

III SEMESTER

CS3361–OBJECT ORIENTED PROGRAMMING

Regulation–2023

Academic Year 2025–2026(odd Semester)

Prepared by,

Ms.S.Nivedha, Assistant Professor / Cyber Security

SRM VALLIAMMAI ENGINEERING COLLEGE

(An Autonomous Institution)

SRM Nagar, Kattankulathur – 603 203.

DEPARTMENT OF MEDICAL ELECTRONICS
QUESTION BANK

SUBJECT : CS3361 – OBJECT ORIENTED PROGRAMMING

SEM / YEAR: III SEM / II Year

UNIT I INTRODUCTION TO OOP AND JAVA		
Overview of OOP – Object oriented programming paradigms – Features of Object Oriented Programming – Java Buzzwords – Overview of Java – Data Types, Variables and Arrays – Operators – Control Statements – Programming Structures in Java – Defining classes in Java – Constructors - Methods -Access specifiers - Static members- Java Doc comments.		
PART – A		
Q.No	**Questions**	**BT Level**	**Competence**

Q.No	Questions	BT Level	Competence
1.	Define OOP.	BTL1	Remembering
2.	Define abstraction and encapsulation.	BTL1	Remembering
3.	List the features of Object Oriented Programming.	BTL1	Remembering
4.	Give the contents of Java Environment (JDK).	BTL1	Remembering
5.	Define Inheritance and Polymorphism.	BTL1	Remembering
6.	Write a variable in Java and print its value using a simple java program.	BTL2	Understanding
7.	List the various access specifiers supported by OOP.	BTL1	Remembering
8.	Define Constructors.	BTL1	Remembering
9.	Classify the steps for execution of a java program.	BTL2	Understanding
10.	Identify the three major sections of java source file.	BTL2	Understanding
11.	Classify the types of inheritance in java.	BTL2	Understanding
12.	Write a java program to print "Hello World".	BTL2	Understanding
13.	Define static variable and static method.	BTL1	Remembering
14.	What is JVM and JIT?	BTL2	Understanding
15.	List the various comments in Java Doc Comments.	BTL1	Remembering
16.	Modify the following while loop into for loop	BTL2	Understanding

```
int n=10;
int i=1;
while(n>5)
{
i=i*2;
n=n+2;
}
  System.out.println(i);
```

17	Outline integer data types in java.	BTL2	Understanding
18	Differentiate break and continue statements.	BTL2	Understanding
19	What are public static void main(String args[]) and System.out.println()?	BTL2	Understanding
20	Differentiate while() and do..while() loop	BTL2	Understanding
21	Is JVM''s platform independent? Justify.	BTL2	Understanding
22	Assess the method to declare array and how to allocate the memory to array.	BTL1	Remembering
23	Assess the error in the following array declaration and rectify them. a. int a[]=new [10]int; float []b=new int[10.5];	BTL1	Remembering
24	Write a java program using control flow statements.	BTL2	Understanding

PART - B

1.	Analyze the various features of the Object Oriented Programming Language.(16)	BTL4	Analyzing
2.	Define polymorphism. With an example, describe in detail about how polymorphism plays a useful role in Java.(16)	BTL4	Analyzing
3.	List the types of arrays in detail with example program.(16)	BTL4	Analyzing
4.	What is meant by constructor? Discuss the types of constructor with example. (16)	BTL5	Evaluating
5.	With relevant examples describe abstraction and encapsulation. Write a java program that uses an abstraction and encapsulation.(16)	BTL5	Evaluating
6.	i) Illustrate the typical java program structure in detail.(8) ii)Summarize the general java program compilation and execution. (8)	BTL3	Applying
7.	Discover the following: i) Control flow statements in Java (8) ii) Data types in Java (8)	BTL4	Analyzing
8.	Discuss in detail about the different control flow statements in Java with example (16)	BTL5	Evaluating
9.	Explain with the help of a program how object oriented programming overcomes the shortcomings of procedure oriented programming.(16)	BTL4	Analyzing
10.	i) Explain in detail the various operators in Java. (8) ii) Examine the rules for variable declaration (8)	BTL3	Applying
11.	Implement a program in Java that interchanges the odd and even components in an array.(16)	BTL3	Applying
12.	Write a Java program to sort set of names stored in an array in alphabetical order.(16)	BTL3	Applying
13.	Explain in detail about static variable and static method in Java with	BTL4	Analyzing

3

	example.(16)		
14.	Explain how two numbers can be swapped with and without temporary variables. Write a java program for each(16)	BTL4	Analyzing
15.	Explain the characteristics of OOPs.(16)	BTL4	Analyzing
16.	Consider the following series of number: 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, etc. Write a Java program to print the above series by getting the numbers of values to be printed from the user (16)	BTL5	Evaluating
17.	Write the techniques to design classes in Java using JavaDoc. (16)	BTL3	Applying

UNITII INHERITANCE, PACKAGES AND INTERFACES			
Overloading Methods – Objects as Parameters – Returning Objects –Static, Nested and Inner Classes. Inheritance: Basics– Types of Inheritance -Super keyword -Method Overriding –Abstract Classes – final with Inheritance. Packages and Interfaces: Packages – Packages and Member Access –Importing Packages – Interfaces.			
PART - A			
Q.No	Questions	BT Level	Competence
1.	Define abstract class.	BTL1	Remembering
2.	What is the use of Inheritance and what are its advantages?	BTL1	Remembering
3.	List the methods provided by the object class.	BTL1	Remembering
4.	Tell how interfaces can be extended.	BTL1	Remembering
5.	Define Interface.	BTL1	Remembering
6.	List the order of execution of constructor during creation of class hierarchy?	BTL1	Remembering
7.	How can you access the super class version of an overridden method? How?	BTL2	Understanding
8.	Do you declare private and protected modifiers for variables in interfaces? Justify	BTL2	Understanding
9.	Infer how to access interface variables.	BTL2	Understanding
10.	What is the use of,, static keyword.	BTL2	Understanding
11.	List down the uses of final classes	BTL2	Understanding
12.	Whether a subclass can access all members of super class? How?	BTL1	Remembering
13.	Can we instantiate an abstract class? Justify	BTL2	Understanding
14.	Define final and finalize.	BTL1	Remembering
15.	When to use final variable and method?	BTL1	Remembering
16.	Compare superclass and subclass.	BTL2	Understanding
17.	Distinguish between classes and interface.	BTL2	Understanding
18	Examine the effect if an abstract class is private.	BTL2	Understanding
19	Does java support multiple inheritance?	BTL2	Understanding
20	Does a class implement more than one interface? Write an example for it.	BTL2	Understanding
21	What's the difference between an interface and an abstract class?	BTL1	Remembering

22	How to make a statement execute before the main method is invoked by JVM?	BTL2	Understanding
23	How to create an inner class?	BTL2	Understanding
24	Write a simple program to implement abstract class.	BTL2	Understanding
PART – B			
1.	Define Inheritance? With diagrammatic illustration and java programs illustrate the different types of inheritance.(16)	BTL3	Applying
2.	Define multiple inheritance and how to perform multiple inheritance in Java.(16)	BTL3	Applying
3.	Describe Abstract classes with an example program. Also describe the properties of abstract classes.(16)	BTL5	Evaluating
4.	Describe interfaces & how to implement it with a Java Program?(16)	BTL5	Evaluating
5.	Explain the concepts of Overloading and method overriding with an example.(16)	BTL5	Evaluating
6.	Illustrate the about inner classes and its types with examples.(16)	BTL3	Applying
7.	Summarize the concept of super classes and sub classes.(16)	BTL4	Analyzing
8.	Explain final methods, variables and classes with sample program.(16)	BTL5	Evaluating
9.	Explain how to define an interface? Why do the members of interface are static and final?(16)	BTL5	Evaluating
10.	Explain extending interfaces with a Program & Variables Program.(16)	BTL5	Evaluating
11.	Examine the methods used in object class with illustrative Program.	BTL3	Applying
12.	How can we overload the constructor? Explain by using multilevel inheritance(16)	BTL4	Analyzing
13.	How to use the super keyword to invoke a superclass's variable, constructor and methods. Illustrate with example program. (16)	BTL4	Analyzing
14.	i. Is it possible to call a sub class constructor from super class constructor? Justify with example program (8) ii. Can we have this and super in the same constructor? Justify with example program(8)	BTL4	Analyzing
15.	How many interfaces can a class inherit and can a same interface be inherited by 2 different classes? Explain it.(16)	BTL5	Evaluating
16.	Can you give a detailed sketch of the differences between Single, Multilevel & Hierarchical Inheritance? .(16)	BTL5	Evaluating
17.	Declare an abstract class to represent a bank account with data members name, account number, address and abstract methods withdraw and deposit. Method display() is needed to show balance. Derive a subclass Savings Account and add the following details: return on investment and the method calcAmt() to show the amount in the account after 1 year.Create instance of Savings Account and show the use of withdraw and deposit abstract methods.(16)	BTL6	Creating

UNIT - III: EXCEPTION HANDLING AND MULTITHREADING

Exception Handling basics – Multiple catch Clauses – Nested try Statements – Java's Built-in Exceptions – User defined Exception. Multithreaded Programming: Java Thread Model–Creating a Thread and Multiple Threads – Priorities – Synchronization – Inter Thread Communication-Suspending –Resuming, and Stopping Threads –Multithreading.

	PART - A		
Q.No	**Questions**	**BT Level**	**Competence**
1.	Define Exception.	BTL1	Remembering
2.	State the general form of an exception handling block.	BTL1	Remembering
3.	What are the various segments of an exception handling mechanism?	BTL2	Understanding
4.	Give the advantages of using exception handling mechanism.	BTL2	Understanding
5.	Define the two types of exception. Explain them.	BTL2	Understanding
6.	How can you access the class if it is declared without any access modifiers?	BTL3	Applying
7.	Show what is the purpose of the finally clause of a try-catch-finally statement?	BTL3	Applying
8.	Why java generates unreachable code error during multiple catch statements?	BTL5	Evaluating
9.	Can an exception be rethrown? How?	BTL5	Evaluating
10.	What happens if an exception are not provided by the user?	BTL6	Creating
11.	Define Throwable Class.	BTL1	Remembering
12.	Difference Between exception and error.	BTL2	Understanding
13.	What is Exception handling?	BTL1	Remembering
14.	Illustrate the life cycle of thread	BTL 3	Applying
15.	What do you mean by threads in Java ?	BTL1	Remembering
16.	"Thread is a lightweight process" - Discuss	BTL2	Understanding
17.	What are the three ways by which the thread can enter in waiting stage?	BTL1	Remembering
18	Can we have empty catch block? Show it with an example.	BTL 3	Applying
19	Why do we need run() and start() method both? Can we achieve it with only run() method? Analyze it.	BTL4	Analyzing
20	Explain the two ways of creating a thread?	BTL4	Analyzing
21	Differentiate between process and thread.	BTL4	Analyzing
22	Pointout what do you mean by synchronization ?	BTL4	Analyzing
23	What are different stages in thread? Summarize it.	BTL5	Evaluating
24	There are three statements in a try block - statement1, statement2 and statement3. After that there is a catch block to catch the exceptions occurred in the try block. Assume that exception has occurred in statement2. Does statement3 get executed or not? Formulate it.	BTL6	Creating
	PART - B		

1.	Define exception. Why it is needed? Explain the different types of exceptions and the exception hierarchy with appropriate examples using Java.(16)	BTL1	Remembering
2.	Explain the use of try-catch clauses by sample statements of rare type of run time error. (16)	BTL2	Understanding
3.	How exceptions are handled in Java? Explain the important methods used to handle exception.(16)	BTL3	Applying

4.	Describe the following concepts with example
	  i. Try-catch-throw paradigm. (8)
	  ii. Exception specification. (8)
		BTL3	Applying

5.	Discuss in detail about exception handling constructs and write a program to illustrate Divide by zero exception.(16)	BTL4	Analyzing
6.	Evaluate a try block that is likely to generate three types of exception and then incorporate necessary catch blocks and handle	BTL5	Evaluating
7.	Draw an exception hierarchy in java and explain with examples throwing and catching exceptions and common exceptions. (16)	BTL6	Creating
8.	Explain in detail about Java‟s Built-in Exceptions. Explain any three Exceptions.	BTL4	Analyzing
9.	What is java exception? How java exception handling is managed? Outline. (8) Outline java checked exceptions defined in java.lang.package. (8)	BTL5	Evaluating
10.	With illustrations explain multithreading, interrupting threads, thread states and thread properties.(16)	BTL3	Applying
11.	Describe the life cycle of thread and various thread methods.(16)	BTL2	Understanding
12.	Explain the thread creation method in detail.(16)	BTL4	Analyzing
13.	How do you create multiple threads with an example.(16)	BTL1	Remembering
14.	Summarize the inter thread communication with a suitable example.(16)	BTL5	Evaluating
15.	Express the creation of a thread using runnable interface.(16)	BTL2	Understanding
16.	Describe about the thread priorities in detail.(16)	BTL1	Remembering
17.	Identify the thread creation method by extending thread class.(16)	BTL1	Remembering

UNIT IV - I/O, GENERICS, STRING HANDLING
I/O Basics – Reading and Writing Console I/O – Reading and Writing Files. Generics: Generic Programming – Generic classes – Generic Methods – Bounded Types – Restrictions and Limitations. Strings: Basic String class, methods and String Buffer Class.
PART - A

Q.No	Questions	BT Level	Competence
1.	Define Java I/O basics.	BTL1	Remembering
2.	What are streams?	BTL1	Remembering
3.	List the byte stream classes.	BTL1	Remembering
4.	What is absolute file name?	BTL1	Remembering

5.	What is relative file name?	BTL1	Remembering
6.	Describe the use of seek method.	BTL1	Remembering
7.	Express a Java code to check if the command line argument is file or not.	BTL2	Understanding
8.	Discuss the two common constructors of FileInputStream.	BTL2	Understanding
9.	Summarize the use of Input Stream Reader and Output Stream Writer?	BTL2	Understanding
10.	Give an example for reading data from files using FileInputStream	BTL2	Understanding
11.	Illustrate why generic programming is required?	BTL3	Applying
12.	Show an example of a generic class.	BTL3	Applying
13.	Examine can generic be used with inheritance in several ways? What are they?	BTL3	Applying
14.	Pointout any two advantages of type parameters.	BTL4	Analyzing
15.	Explain any two challenges of generic programming in virtual machine.	BTL4	Analyzing
16.	Analyze the operations on String handling.	BTL4	Analyzing
17.	Discriminate between the capacity and length function of String Buffer class using java program.	BTL5	Evaluating
18.	Explain using a simple Java program to check the palindrome of the given string.	BTL5	Evaluating
19.	Generalize in detail about bounded types with suitable example	BTL6	Creating
20.	Prepare an example program in Java on how to implement bounded types	BTL6	Creating
21.	Express the Restrictions and Limitations of generic type.	BTL2	Understanding
22.	Illustrate a Java program to read entire line through keyboard.	BTL3	Applying
23.	Differentiate Byte Streams and Character Streams classes.	BTL4	Analyzing
24.	Compare string and StringBuffer class.	BTL5	Evaluating
PART - B			
1.	Write a program to count the total no. of chars, words, lines, alphabets, digits, white spaces in a given file.(16)	BTL1	Remembering
2.	Write a program that copies the content of one file to another file.(16)	BTL1	Remembering
3.	Describe in detail about FileInputStream and FileOutputStream with an example.(16)	BTL1	Remembering
4.	(i)Define generic programming and explain with an example about generic classes.(8) (ii)Write in detail about generic functions with an example.(8)	BTL1	Remembering
5.	(i)Discuss a program to read from a file using BufferedReader class.(8) (ii) Discuss a program to read from a file using FileWriter class.(8)	BTL2	Understanding

6.	(i)Summarize in detail about String and String constructor.(8) (ii)Discuss in detail about String handling functions.(8)	BTL2	Understanding
7.	Give the complete functionality of StringBuffer class with an example.(16)	BTL2	Understanding
8.	Show an example of String Comparison function.(16)	BTL3	Applying
9.	Discover how do you invoke and instantiate a generic type and why generics is used with an example.(16)	BTL3	Applying
10.	Explain in detail about reading console input with an example.(16)	BTL4	Analyzing
11.	Analyze how Generics Improve Type Safety with an example.(16)	BTL4	Analyzing
12.	Infer a Java program to insert a string "FRIEND" in the given string " --- in need is a indeed".(16)	BTL4	Analyzing
13.	(i)Explain java program to count vowels and consonants in a String.(8) (ii)Explain java Program to find number of elements in an array.(8)	BTL5	Evaluating
14.	Design string sorting using bubble sort.(16)	BTL6	Creating
15.	Summarize the concept of streams and stream classes and their classification.(16)	BTL2	Understanding
16.	While reading a file how would you check whether you have reached the end of the file.(16)	BTL3	Applying
17.	Illustrate in brief about i. Reading from a file. (8) ii. Writing in a file. (8)	BTL5	Evaluating

UNIT V - JAVAFX EVENT HANDLING, CONTROLS AND COMPONENTS
AWT vs Swing Components – JAVAFX Events and Controls: Event Basics – Handling Key and Mouse Events. Controls: Checkbox, ToggleButton – RadioButtons –ListView – ComboBox – ChoiceBox – Text Controls – ScrollPane. Layouts –FlowPane – HBox and VBox – BorderPane – StackPane – GridPane. Menus –Basics – Menu – Menu bars –MenuItem.

PART – A		
Q.No	Questions	BT Level	Competence
1.	What is JavaFX ?	BTL1	Remembering
2.	What are various features of JavaFX ?	BTL1	Remembering
3.	Is Javafx Open Source ?	BTL1	Remembering
4.	What are the main components of JavaFX application?	BTL1	Remembering
5.	Which method is used to launch JavaFX application?	BTL1	Remembering
6.	What is FlowPane?	BTL1	Remembering
7.	Explain the terms - Stage and scene used in JavaFX application.	BTL2	Understanding
8.	What is the use of pane in JavaFX application?	BTL2	Understanding
9.	What is property binding in JavaFX ?	BTL2	Understanding
10.	What is Event?	BTL2	Understanding
11.	What is event source object?	BTL3	Applying
12.	Explain the terms - event handler and event listener.	BTL3	Applying
13.	Explain the event methods in JavaFX that are associated with keyboard.	BTL3	Applying

14.	Explain any two UI controls used in JavaFX application.	BTL4	Analyzing
15.	Analyze the terms "ListView, ComboBox and ChoiceBox"	BTL4	Analyzing
16.	Enlist various layout panes used in any JavaFX application?	BTL4	Analyzing
17.	Explain the terms - Menubar and Menu item.	BTL5	Evaluating
18.	Discriminate Menubar and Menuitem.	BTL5	Evaluating
19.	Generalize the term StackPane.	BTL6	Creating
20.	Develop the ScrollPane.	BTL6	Creating
21.	Define TextControl.	BTL2	Understanding
22.	Design GridPane.	BTL3	Applying
23.	Differentiate HBox and VBox.	BTL4	Analyzing
24.	Summarize the various terms Checkbox, ToggleButton and RadioButtons	BTL5	Evaluating
PART-B			
1.	Describe Event basics in detail.(16)	BTL1	Remembering
2.	Examine in detail about handling mouse events.(16)	BTL1	Remembering
3.	Identify with an example about handling Key events.(16)	BTL1	Remembering
4.	Describe the way of Handling events in detail.(16)	BTL1	Remembering
5.	Give the controls in JAVA AWT? Express any two of them in detail.(16)	BTL2	Understanding
6.	Discuss in detail about the different layouts in JAVA AWT?(16)	BTL2	Understanding
7.	Interpret the controls Checkbox, ToggleButton and RadioButton with an example.	BTL2	Understanding
8.	Explain about Border Pane and Flow Pane with an example.(16)	BTL3	Applying
9.	Illustrate in detail about the following: (i)Menu(4) (ii)Menubars(6) (iii) Menuitem (6)	BTL3	Applying
10.	Analyze the following controls: (i)ComboBox (8) (ii)ChoiceBox (8)	BTL4	Analyzing
11.	Explain the following: (i) TextControls (8) (ii) Scrollpane with an example(8)	BTL4	Analyzing
12.	Differentiate HBox and VBox. with suitable example.	BTL4	Analyzing
13.	Summarize the term StackPane with an example.(16)	BTL5	Evaluating
14.	Design a GridPane with an example.(16)	BTL6	Creating
15.	Discuss in detail about AWT Components.(16)	BTL2	Understanding
16.	Illustrate the Swing Components in detail.(16)	BTL3	Applying
17.	Summarize all types of menus in detail with an example.(16)	BTL5	Evaluating